

What is claimed is:

1. A cardiac rhythm management device, comprising:  
5 a bipolar lead with anodal and cathodal electrodes for disposing in proximity to a chamber of the heart;  
a reference electrode;  
means for outputting stimulus pulses at a selected pulse energy to selected electrodes of the bipolar lead and to the reference electrode; and,  
10 means for measuring a unipolar capture threshold for the cathodal electrode with the reference electrode acting as a reference in order to determine an appropriate stimulus pulse energy for bipolar stimulation.
2. The device of claim 1 wherein the reference electrode is a housing of the device.  
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3. The device of claim 1 further comprising means for setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the measured unipolar capture threshold.
- 20 4. The device of claim 1 further comprising means for measuring a bipolar capture threshold using the anodal and cathodal electrodes in order to determine an appropriate stimulus pulse energy for bipolar stimulation.
5. The device of claim 4 further comprising means for setting the bipolar stimulus  
25 pulse energy to a value corresponding to the greater of the bipolar and unipolar capture thresholds.
6. The device of claim 1 wherein the cathodal and anodal electrodes are located proximally and distally, respectively, on the bipolar lead.

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7. The device of claim 1 wherein the cathodal and anodal electrodes are tip and ring electrodes, respectively, of the bipolar lead.
8. A cardiac rhythm management device, comprising:
- 5 a bipolar lead with proximal and distal electrodes for disposing in proximity to a chamber of the heart;
- a reference electrode;
- means for outputting stimulus pulses at a selected stimulus pulse energy to selected electrodes of the bipolar lead and to the reference electrode; and,
- 10 means for measuring a unipolar capture thresholds for the proximal and distal electrodes with the reference electrode acting as a reference in order to determine which of the proximal and distal electrodes should be used as an anode and cathode for bipolar stimulation..
- 15 9. The device of claim 8 further comprising means for selecting the electrode of the bipolar lead having the lowest unipolar capture threshold as the cathode for bipolar stimulation, with the other electrode serving as the anode.
10. The device of claim 8 further comprising means for setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the measured unipolar capture threshold for the electrode selected to be the cathode.
- 20 11. The device of claim 8 further comprising means for measuring a bipolar capture threshold and means for setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the greater of either the measured bipolar capture threshold or the measured cathodal unipolar capture threshold.
- 25 12. The device of claim 8 wherein the reference electrode is a housing of the device.

13. A method for determining a bipolar stimulus configuration for a cardiac rhythm management device with a bipolar lead having proximal and distal electrodes, comprising:

outputting stimulus pulses to the proximal electrode with a structure or electrode  
5 other than the distal electrode of the bipolar lead acting as a reference and varying the stimulus pulse energy in order to determine a unipolar capture threshold for the proximal electrode;

outputting stimulus pulses to the distal electrode with a structure or electrode  
other than the proximal electrode of the bipolar lead acting as a reference and varying  
10 the stimulus pulse energy in order to determine a unipolar capture threshold for the distal electrode;

selecting the electrode of the bipolar lead having the lowest unipolar capture threshold as the cathode for bipolar stimulation, with the other electrode serving as the anode.

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14. The method of claim 13 further comprising setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the measured unipolar capture threshold for the electrode selected to be the cathode.

20 15. The method of claim 13 further comprising:

measuring a bipolar capture threshold for the bipolar lead; and

setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the greater of the measured unipolar and bipolar capture thresholds.

25 16. The method of claim 13 wherein the reference for the unipolar capture threshold measurement is a housing of the device.

17. The method of claim 13 wherein the bipolar lead is disposed within a cardiac vein.

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18. A method for operating a cardiac rhythm management device having a bipolar lead with anodal and cathodal electrodes for disposing in proximity to a chamber of the heart, comprising:

outputting stimulus pulses at a selected pulse energy to selected electrodes of the bipolar lead and to a reference electrode; and,

varying the pulse energy and measuring a unipolar capture threshold for the cathodal electrode with the reference electrode acting as a reference in order to determine an appropriate stimulus pulse energy for bipolar stimulation.

19. The method of claim 18 further comprising setting the stimulus pulse energy for bipolar stimulation to a value corresponding to the measured unipolar capture threshold.

20. The device of claim 18 further comprising measuring a bipolar capture threshold using the anodal and cathodal electrodes and determining an appropriate stimulus pulse energy for bipolar stimulation as a value corresponding to the greater of the bipolar and unipolar capture thresholds.